

## WHAT IS CLAIMED IS:

1. A multiplex communication system in which signal  
converting means converts into an analog baseband signal a  
digital multiplex signal consisting of a plurality of  
5 digital signals multiplexed, and in which quadrature  
modulation means converts the analog baseband signal into an  
RF signal, said multiplex communication system comprising:

scaling calculation means for calculating a scaling  
factor, which is used for amplitude adjusting processing of  
10 the digital multiplex signal, in response to an amplitude of  
the digital multiplex signal generated by digital modulation  
means and in accordance with an amplitude range suitable for  
signal processing by said quadrature modulation means;

scaling control means for performing the amplitude  
15 adjusting processing of the digital multiplex signal in  
response to the scaling factor calculated by said scaling  
calculation means, and for supplying its result to said  
signal converting means;

control signal generating means for generating a  
20 correction control signal in response to the scaling factor  
generated by said scaling calculation means; and

signal correcting means for performing, in response to  
the correction control signal, correction processing of the  
RF signal output from said quadrature modulation means to  
25 cancel out effect of the amplitude adjusting processing  
carried out by said scaling control means.

2. The multiplex communication system according to claim 1,  
wherein said control signal generating means calculates the  
30 scaling factor from an effective value of amplitudes of an

in-phase component and a quadrature component of the digital multiplex signal and from a digital conversion value of the amplitude range suitable for the signal processing of said quadrature modulation means, the digital multiplex signal  
 5 being generated by data modulation followed by direct sequence CDMA modulation of coded transmission data of multiple channels by said digital modulation means.

3. The multiplex communication system according to claim 2, wherein said control signal generating means calculates the scaling factor by  
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$$S = \text{INT}\{\log_2(D/Z)\}$$

where S is the scaling factor,

INT is a function for taking an integer value,

15 Z is the effective value of the digital multiplex signal, and

D is the digital conversion value,

and supplies the scaling factor to said scaling control means as a scaling control signal, and wherein said scaling  
 20 control means shifts up by S bits the digital multiplex signal consisting of the in-phase component and quadrature component generated by said digital modulation means when the scaling control signal is positive, and shifts down by S bits the digital multiplex signal consisting of the in-phase  
 25 component and quadrature component generated by said digital modulation means when the scaling control signal is negative.

4. The multiplex communication system according to claim 3, wherein said control signal generating means provides the  
 30 digital conversion value D with a hysteresis characteristic,

and carries out S-bit shift up or down of the digital multiplex signal composed of the in-phase component and quadrature component generated by said digital modulation means.

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5. The multiplex communication system according to claim 1, wherein said control signal generating means supplies said signal correcting means with the correction control signal passing through RAMP processing that is performed in response to the correction control signal generated at a predetermined time before and the correction control signal generated at present.

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6. The multiplex communication system according to claim 2, wherein said control signal generating means supplies said signal correcting means with the correction control signal passing through RAMP processing that is performed in response to the correction control signal generated at a predetermined time before and the correction control signal generated at present.

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7. The multiplex communication system according to claim 3, wherein said control signal generating means supplies said signal correcting means with the correction control signal passing through RAMP processing that is performed in response to the correction control signal generated at a predetermined time before and the correction control signal generated at present.

30 8. The multiplex communication system according to claim 4,

wherein said control signal generating means supplies said signal correcting means with the correction control signal passing through RAMP processing that is performed in response to the correction control signal generated at a predetermined time before and the correction control signal generated at present.

9. A signal processing method of a multiplex communication system in which signal converting means converts into an analog baseband signal a digital multiplex signal consisting of a plurality of digital signals multiplexed, and in which quadrature modulation means converts the analog baseband signal into an RF signal, said signal processing method comprising the steps of:

calculating a scaling factor, which is used for amplitude adjusting processing of the digital multiplex signal, in response to an amplitude of the digital multiplex signal generated by digital modulation means and in accordance with an amplitude range suitable for signal processing by said quadrature modulation means;

performing the amplitude adjusting processing of the digital multiplex signal in response to the scaling factor calculated, and for supplying its result to said signal converting means;

generating a correction control signal in response to the scaling factor generated; and

performing, in response to the correction control signal, correction processing of the RF signal output from said quadrature modulation means to cancel out effect of the amplitude adjusting processing.